

WISSENSCHAFTLICHE KURZMITTEILUNGEN

Food habits of the Lesser false vampire, *Megaderma spasma*,
from Kuala Lompat, Peninsular Malaysia

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Very little is known of the feeding habits of Malaysian microchiropterans except for some detailed studies on *Hipposideros pomona* (ZUBAID 1988a), *Hipposideros armiger* (ZUBAID 1988b) and *Taphozous melanopogon* (ZUBAID 1990). The main problem with the study of microchiropteran feeding habits is that bats thoroughly chew their food, making identification of most prey remains below the family level practically impossible and thus giving only an indication of the order of importance of the dominant prey items (WHITAKER 1988). However, the study of microchiropteran feeding habits is important as bats are

Estimated proportions of animal remains collected from the roost of *Megaderma spasma*

Food item	Proportion (%)
ORTHOPTERA	
Tettigoniidae	51.5
Blattidae	12.5
Acrididae	2.0
Phasmantidae	2.0
Gryllidae	3.0
Mantidae	1.0
COLEOPTERA	
Scarabaeidae	12.0
LEPIDOPTERA	
Satyridae	3.0
Amathuacidae	1.0
Danaidae	1.0
Geometridae	0.5
Papilionidae	0.5
Arctidae	0.5
Nymphalidae	2.0
Noctuidae	1.5
HYMENOPTERA	
Formicidae	0.5
ISOPTERA	4.0
HOMOPTERA	0.5
Cicadidae	0.5
ODONATA	0.5
ANURA	
<i>Rhacophorus appendiculatus</i>	0.5

thought to play an important role in influencing insect populations both in forests and cultivated lands (HILL and SMITH 1984; COULSON and WITTER 1984; BENJAMINI 1987).

This study was carried out at Kuala Lompat, Krau Game Reserve, Pahang, at a permanent day-time and feeding roost of between two and five *Megaderma spasma*. The roost was located under the asbestos roof of an abandoned room in an old wooden rest-house. This was sited in a grass clearing with fruit trees, bordered on one side by the 500 km² lowland dipterocarp rainforest of the Krau Game Reserve, and on the other by a small river and extensive mature rubber estates.

All observed food discards were collected from beneath the roost, at irregular intervals from March 1988 to September 1990. No attempt was made to determine prey selection versus prey availability as the remains were collected in conjunction with another study.

The table lists the food material collected. The samples from the various months were pooled due to small sample sizes (n = 1632). The remains were compared with identified collections in the

Zoology Museum, University Kebangsaan Malaysia. The proportions are percentages of the total collected remains and the procedure used followed that of LAVAL and LAVAL (1980). The majority of the remains were wings and wing-cases, with a few legs. These had evidently been dropped whilst the head, thorax and abdomen of all prey were fully consumed. Most of the remains were of big insects found typically on foliage. This, and the presence of a tree-frog, imply that most prey were probably picked from the vegetation. Orthopterans and coleopterans made up a large proportion of the diet, 72.5% and 12% respectively. Only one vertebrate, the frog (only the legs remained), was recovered from the roost site.

Amongst the lepidopteran remains (12%), there were equal proportions from typically diurnal and typically nocturnal families. This again may be evidence that food is picked from vegetation, rather than caught while the prey is in flight.

There is no previous detailed information concerning the food habits of *M. spasma*. MEDWAY (1982) and PAYNE et al. (1985) only mention that this species eats "large insects" and "small vertebrates" (including other bats) but did not mention the specific types of prey that are consumed. The results of this study indicate that *M. spasma* feeds selectively on orthopterans (Table) which make up approximately three-quarters of the diet followed by coleopterans. Although this species is known to eat other small vertebrates, the findings in this study indicate that they are a minor component of the diet.

BROSSET (1962) noted that *M. spasma* hunts near its daytime roost and tends to return to its roost to consume the prey. If this is also true of the species in Malaysia, then the results of the dietary analysis could be considered to be a reasonably accurate reflection of its feeding habits.

Most orthopterans are phytophagous while the coleopterans are considered to be among the most destructive insect pests of forest trees (COULSON and WITTER 1984). Birds, bats and other small mammals are among the most significant vertebrate predators of insects (COULSON and WITTER 1984; SPEIGHT and WAINHOUSE 1989) but quantitative studies concerning bats are lacking. Although *M. spasma* occurs only in small groups, not in big roosts (BROSSET 1962; MEDWAY 1982), and takes only a limited range of insect prey (this study), it is likely that the cumulative effect of Peninsular Malaysia's rainforest bat species (MEDWAY 1982), each with its own dietary range (ZUBAID 1988a, 1988b, 1990; this study) has a significant influence on the low-density dispersed populations of rainforest insects (ELTON 1973).

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